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THE ABILITY OF UNTRAINED SUBJECTS TO JUDGE  
DOMINANCE FROM HANDWRITING SAMPLES

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## THE ABILITY OF UNTRAINED SUBJECTS TO JUDGE DOMINANCE FROM HANDWRITING SAMPLES\*

BY WARREN C. MIDDLETON

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The purpose of this study is to determine to what extent it is possible for untrained judges to rate the degree of dominance possessed by several subjects, where judgments are made solely from handwriting specimens.

American psychologists have never taken very kindly to the claims of graphologists. This lack of appreciation can partly be explained by the fact that in this country we have a plethora of "quacks" and "personality mongers," who, unrestrained by the rigid requirements of true science, assure an unsuspecting public that handwriting is a more or less infallible guide for revealing one's "mystical personality." One of these self-styled experts recently advertised that script could be used (by her, of course) to give clues as to one's proper dress needs.

Naturally, these charlatans tend to discredit *all* graphologists. Thus, Allport and Vernon (1, p. 185) write:

The prevailing attitude toward graphology among American psychologists is one of skepticism and distrust. It is customary to find graphology contemptuously dismissed along with phrenology and palmistry, or deplored as a public menace of the "gold brick" variety. . . . As a consequence of this point of view very few psychologists in this country have studied its methods or claims seriously; in their criticisms they seldom refer to more than one or two inconclusive experiments.

There is not so much skepticism in Europe, where not a few psychologists see in handwriting "an intricate but accessible prism which reflects many, if not all, of the inner characteristics of personality" (1, p. 186).

In England, Saudek (7) has developed one of the most elab-

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orate systems of scientific graphology, although Symonds (9, p. 525) condemns him for mixing "his physiological studies with vague speculations." In America, Allport and Vernon, as a result of their experiments on expressive movements, conclude that "handwriting will show consistencies with other expressions of personality" (1, p. 188). They point out, too, that handwriting "provides material that is less artificial than tests and more convenient for analysis" (1, p. 187). However, they are careful to state that handwriting *as a whole* must be studied with personality *as a whole*. It is not fair, they contend, to confine the matching of script with partial and fragmentary information concerning the subjects. "If graphology is to be allowed to justify its claims revealing the total personality, the judges should have *all* the available data concerning the personalities of the writers" (1, p. 200).

Symonds is inclined to give acceptance (apparently with some reluctance) to the possibility of script revealing inner consistencies of personality.

It is quite conceivable that one's temperamental qualities should express themselves in handwriting. . . . It must be confessed that certain persons actually have acquired a skill in the art of reading handwriting that enables them to diagnose traits with an accuracy greater than the expectation of chance (9, p. 525).

Allport and Vernon, in thorough consistency with their gestaltian view that handwriting *as a whole* must be studied with personality *as a whole*, do not contend that *specific* personality traits can be revealed by the *specific* script "signs" commonly used by graphologists. "Most of the experiments," they say, "devised by skeptical psychologists, who seek correlations between specific details of script and specific traits, are foredoomed to negative results" (1, p. 189). The truth of this statement (or prediction) is well attested in the study by Hull and Montgomery (5). In this experiment, 17 student subjects were asked to copy a passage; each subject wrote on uniform paper and used his own pen. These handwriting specimens were measured microscopically for some of the "signs" that are often used by graphologists in making a personality analysis. Each subject was ranked by fraternity members, who knew him well, on such traits as perseverance, reserve, ambition, forcefulness. The average correlation between the ten sets of

measurements and ratings was  $-.016^1$  (the range from  $-.45$  to  $.38$ ). Inasmuch as the present paper is concerned with the ability of untrained judges to judge dominance from script copy, it is interesting to note that in the Hull and Montgomery experiment the correlation between force<sup>2</sup> and heavy writing is  $-.17$ ; the correlation between force and heavy bars on *t*'s is  $-.06$ .

The Hull and Montgomery experiment is unsatisfactory in several respects. The most valid criticism is that the personality ratings used were unreliable. Also, as Allport and Vernon (1, p. 193) have pointed out, their subjects were graphically immature, the group was very homogeneous, and the script (a copied passage) lacked spontaneity. Brown (2), one of Hull's students, performed a similar experiment, getting correlations that were only slightly higher than Hull and Montgomery's.

Downey (3), in an attempt to test some of the claims of graphologists, had 12 psychologists to rate 28 to 30 other psychologists, with whom they were fairly well acquainted. She made a careful graphological analysis of the handwriting of her subjects, and classified them for the same traits. Both sets of ratings were made on a 5-point scale; consequently, 20 per cent. of the correct judgments might have been achieved by chance. The traits ranged from 48.2 to 33.3 per cent. correct judgments. Downey suggests that the extent of agreement with ratings was perhaps reduced somewhat by too much dependence on graphological symptoms rather than on the handwriting as a whole.

Although the present paper is concerned with the ability of untrained judges (not graphologists) to judge dominance (masterfulness, assertiveness, aggressiveness) from handwriting, it is in-

<sup>1</sup> Symonds comments that this average correlation "represents about the amount of assurance that one should give to the claims of graphologists" (9, p. 527). It will be noted that this statement is not altogether consistent with Symonds' previous remark that certain persons *can* diagnose traits from handwriting with an accuracy greater than the expectation of chance.

<sup>2</sup> Graphologists maintain that forcefulness is indicated by heavy lines and heavy bars on the *t*'s. Concerning this claim, Symonds remarks: "It would not be surprising to find that forceful people write heavier than timid people, or that bashful people write lightly, but such does not seem to be the case when these characteristics of people are actually compared with their handwriting" (9, p. 527ff.)

structive to note what claims graphologists make with reference to this ability. It is not the purpose of the author to burden the reader with a lengthy account of graphological theory. Perhaps it may be sufficient to let one professional graphologist speak, assuming that he is a typical representative of his profession. Smith (8) sets forth the following rules for judging dominance from script:

- Down strokes that are heavy* indicate masterfulness (p. 7).
- When writing is abnormally large and in the angular hand* it denotes that the person insists on having his own way whether it suits others or not (p. 14).
- Heavy writing* indicates assurance, aggressiveness, and a domineering disposition (p. 15).
- Shaded writing* (unconscious shading) denotes an insistent nature (p. 17).
- Ornate writing* indicates that the person is inclined to be headstrong (p. 20).
- Final stroke turned downward without hook* indicates that the person is obstinate and willful (p. 36).
- Final stroke turned downward with a tiny hook* indicates that the person is insistent upon his own ideas (p. 37).
- Capitals that are plain but large* indicate aggressiveness and masterfulness (p. 42).
- The "t" heavily crossed, usually across the stem,* indicates force, assertiveness (p. 76).

As a part of a recent study, Eisenberg (4) tested the ability to judge dominance-feeling from the handwriting samples of dominant and non-dominant men and women. Sixty handwriting samples were obtained from college students (30 men and 30 women). For determining dominance and non-dominance, Eisenberg used the Maslow Social Personality Inventory, a rating of dominance-feeling (both of these administered twice) and an interview. On the basis of these criteria, 15 of each sex at each extreme of dominance-feeling were selected as subjects. Samples of the handwriting of these 60 subjects were submitted to 10 judges, all graduate students in psychology. The men's and the women's handwriting specimens were judged separately for feeling of dominance; the former group was always judged first. Eisenberg found that the judgments of dominance-feeling from script were little better than chance expectation. For the judgment of dominance in men, the

average per cent. correct judgments was 50.67 per cent., or a  $C$  of  $.015 \pm .18$ ; for the women, 64.00 per cent., or a  $C$  of  $.27 \pm .15$ .

#### METHOD

Handwriting samples were secured from 10 DePauw University students,<sup>3</sup> 5 men and 5 women, selected from a large group of students in various psychology classes, for whom dominance scores were available from the Bernreuter Personality Inventory (B4-D Scale). One man and one woman were selected from each of the 10th, 30th, 50th, 70th, and 90th percentiles (five different degrees of dominance, from very inferior to very superior). Each subject was asked to write from dictation on a 4x6 inch card the sentence: "The dog jumps quickly over the fence after the lazy brown fox."<sup>4</sup> All subjects used the same pen. Graphologists would probably say that the length of this script sample is not sufficient for the purpose of making an analysis. Also, the sample does not contain any punctuation marks, the writing of which is supposed by many graphologists to be of some characterological importance. The subjects were not aware of the use to which their writing was to be put. They were told to write in their natural style and at their normal speed.<sup>5</sup> Despite the instructions, however, it could hardly be supposed that some of them did not take more than ordinary care with their writing.

The script samples were thrown by an opaque projector on a screen one at a time before 100 student judges, evenly divided as to sex. These judges were all untrained; none had ever made a serious study of handwriting. Each subject's handwriting sample was presented twice; this made it possible to determine the reliabil-

<sup>3</sup> The group is very homogeneous, and it might be contended that the subjects are too immature. Saudek has shown that handwriting differs markedly according to age; children and adolescents seldom, he says, show graphic maturity. The author is not thoroughly convinced of the validity of this argument.

<sup>4</sup> This sentence was used by Kinder (6) in a study of the ability to judge sex from handwriting. It will be noted that the sentence contains all the letters of the alphabet.

<sup>5</sup> Saudek believes that the speed of writing must be taken into account in making a personality analysis. He proposes several criteria for determining the speed of writing from script.

ities of the judgments. The second presentation was in a different order than the first (see Table 1); the two orders of presentation were determined by chance selection. It may be doubted that memory played any important role in identity of judgment.

In order that the meaning of the trait-name, dominance, might convey the same idea to all judges,<sup>6</sup> dominance was taken to mean assertiveness, masterfulness, aggressiveness, boldness. "A person is dominant who takes initiative, declares himself with force, exercises authority, has confidence in his words and acts, shows forcefulness of character, goes ahead regardless of restrictions or limitations. Non-dominance consists of the opposite, or lack, of these characteristics. A person is non-dominant who is controlled by others, is shy and timid, lacks confidence, and is uncertain."<sup>7</sup>

The judges made their ratings of dominance from script on a 7-point scale. They were not asked to sign their names on their mimeographed rating sheets, but were requested to indicate their sex. The rating sheet consisted of a half page of explanations and directions, followed by an illustration of the use of the rating technique. Each handwriting sample was numbered; the rating scale numbers -3 -2 -1 0 +1 +2 +3 were printed after each script number. The ratings were made by drawing a diagonal line through the number which indicated the degree of dominance which the judge believed the person possessed whose handwriting he observed.

At the conclusion of the experiment the judges were asked to list on the back of their rating sheets the characteristics of script on which they seemed to base their judgments most frequently. Free comments were also elicited.

#### RESULTS AND DISCUSSION

The means and SD's of the 100 judges' ratings of dominance from the handwriting samples of each of the 10 subjects is shown in Table 1. In the "mean" column of this table, a positive number

<sup>6</sup> Inasmuch as all of the judges were students taking advanced courses in psychology, it is likely that the psychological connotation of the trait-name, dominance, was fairly well understood.

<sup>7</sup> This is similar to the definition of dominance-feeling used by Eisenberg (4, p. 482).



TABLE 1  
MEANS AND SD'S OF ONE HUNDRED JUDGES' RATINGS OF DOMINANCE FROM THE HAND-  
WRITING OF EACH OF TEN SUBJECTS

Subject <sup>b</sup>	Sex <sup>c</sup>	Order of Presentation <sup>d</sup>	Bernreuter (B4-D) Percentile <sup>e</sup>	Ratings of Handwriting by Judges <sup>a</sup>					
				Male (N = 50)		Female (N = 50)		Total (N = 100)	
				Mn	SD	Mn	SD	Mn	SD
Mi	F	1 & 20	70	.32	1.46	-.12	1.36	.10	1.41
Be	F	2 & 19	10	-.05	1.57	1.34	1.57	.65	1.57
Mc	F	3 & 11	30	1.17	1.61	1.30	1.92	1.23	1.76
Du	M	4 & 12	30	-.33	1.51	.16	1.53	-.08	1.52
An	F	5 & 13	90	-.53	1.69	.13	1.56	-.20	1.62
Li	M	6 & 14	50	.61	1.42	.39	1.40	.50	1.41
Na	M	7 & 18	90	1.08	1.95	.56	2.01	.82	1.98
Pe	M	8 & 17	70	.40	1.11	.43	1.22	.42	1.16
Se	M	9 & 15	10	.55	1.47	.99	1.34	.77	1.41
St	F	10 & 16	50	.40	1.59	.82	1.65	.61	1.62

<sup>a</sup> The judges rated the handwriting samples for dominance on a scale from -3 to +3.

<sup>b</sup> Subjects are designated by using the first two letters of their names.

<sup>c</sup> Female subjects are referred to by the letter F; male subjects, by the letter M.

<sup>d</sup> The numbers indicate the two orders of presentation of handwriting. For example, Subject "Mi's" handwriting was presented first in the first series and last in the second series.

<sup>e</sup> The percentiles are taken from the tables for college men and women in the Bernreuter Personality Inventory test manual.

indicates a certain degree of dominance; a negative number, a certain degree of non-dominance. In comparing the judges according to sex (in terms of the mean which is nearer correct), it will be noted that the men judges are slightly superior to the women judges in rating Subjects "Mi," "Be," "Mc," "Du," "Na," "Se," and "St"; the women judges are slightly superior in rating Subjects "An," "Li," and "Pe." The men judges excel the women judges in rating both the subjects of their own sex and those of the opposite sex.

The means of the men judges range from 1.17 (Subject "Mc," 30th percentile) to -.53 (Subject "An," 90th percentile). The means of the women judges range from 1.34 (Subject "Be," 10th percentile) to -.12 (Subject "Mi," 70th percentile). The means for the total judges range from 1.23 (Subject "Mc," 30th percentile) to -.20 (Subject "An," 90th percentile). The average mean

TABLE 2

RELIABILITY COEFFICIENTS OF ONE HUNDRED JUDGES' RATINGS OF DOMINANCE FROM THE HANDWRITING OF EACH OF TEN SUBJECTS

Subject <sup>a</sup>	Order of Presentation <sup>b</sup>	$r^c$	$PE_r$	Corrected $r^d$
Mi	1 & 20	.11	.06	.19
Be	2 & 19	.42	.06	.59
Mc	3 & 11	.68	.04	.81
Du	4 & 12	.15	.07	.26
An	5 & 13	.54	.05	.70
Li	6 & 14	.41	.06	.58
Na	7 & 18	.57	.05	.73
Pe	8 & 17	.32	.06	.48
Se	9 & 15	.65	.04	.79
St	10 & 16	.57	.05	.73

<sup>a</sup> Subjects are designated by using the first two letters of their names.

<sup>b</sup> The two orders in which each subject's handwriting samples were presented to the judges.

<sup>c</sup> Correlation of the judges' ratings for the first presentation of handwriting with the second presentation.

<sup>d</sup> Corrected by the Spearman-Brown formula.

(all 10 subjects) for the men judges is .34; for the women judges, .60; for the total judges, .48. Thus, the women judges rate the subjects slightly higher on dominance than do the men judges.

Table 1 shows that the SD's for the men judges range from 1.95 to 1.11; those for the women judges range from 2.01 to 1.22; those for the total judges range from 1.98 to 1.16. In all three cases the highest SD is for Subject "Na" (90th percentile), while the lowest SD is for Subject "Pe" (70th percentile). There is practically no difference between the average SD's (all 10 subjects) of men and women judges (1.54 for men and 1.56 for women).

The raw and the corrected reliability coefficients of the judges' ratings of dominance from the handwriting samples of each of the 10 subjects are shown in Table 2. It will be noted that these corrected coefficients (Spearman-Brown) range between .19 (Subject "Mi," 70th percentile) and .81 (Subject "Mc," 30th percentile). One coefficient is in the twenties, one in the forties, two in the fifties, and four in the seventies. The ratings on only seven of the subjects (those exceeding a correlation of .50) show anything like consistency. The reliability coefficients are, for the most part, rather low, and we may conclude, therefore, that the judgments of

TABLE 3  
RELIABILITY COEFFICIENTS OF JUDGES' RATINGS  
OF DOMINANCE FROM THE HANDWRITING  
OF TEN SUBJECTS

Judges	$r^a$	$PE_r$	Corrected $r^b$
Male	.22	.03	.36
Female	.55	.02	.71
Total	.51	.02	.67

<sup>a</sup> Correlation between the judges' ratings for the first presentation of handwriting with the second presentation.

<sup>b</sup> Corrected by the Spearman-Brown formula.

TABLE 4

CORRELATION BETWEEN JUDGES' RATINGS OF  
DOMINANCE FROM THE HANDWRITING OF  
TEN SUBJECTS AND THE BERNREUTER  
PERCENTILES OF THE SUBJECTS

Judges	N	r	P.E. <sub>r</sub>
Male	50	-.10	.03
Female	50	-.15	.03
Total	100	-.11	.02

dominance from handwriting are not highly consistent. The judgments seem to be made too much from chance rather than on the basis of definite criteria. Table 3 shows the reliability coefficients of the judges' ratings for all of the 10 subjects. Again, the reliability coefficients are not very satisfactory. Women judges are more consistent, however, than are the men judges.

The correlation between the judges' ratings of dominance from the handwriting of the 10 subjects and the Bernreuter (B4-D) percentiles of the subjects is shown in Table 4. All of the correlations are negative—slightly less than might be expected from chance. The correlation for the 100 judges is  $-.11 \pm .02$  ( $-.10 \pm .03$  for the 50 men;  $-.15 \pm .03$  for the 50 women). The men judges, although less consistent in their ratings (Table 3), are more accurate than the women judges; they are better judges in 7 out of 10 cases in judging the individual subjects. From the present study it must be concluded that untrained persons cannot judge dominance from handwriting. This does not mean, of course, that professional graphologists, or amateurs, who have made a serious study of handwriting, could not exceed chance expectation in their judgments. We may assume perhaps that many practicing graphologists would do better than untrained persons. How-

ever, some of the extreme claims made by some graphologists should undoubtedly be taken *cum grano salis*.

The handwriting "signs" in which the judges reported that they placed most confidence in forming a basis for judgment were: size of letters; carelessness or cautiousness; pressure; precise, beautiful letters; apparent speed of the writing; slant; spread of letters; length of stroke at the beginning of a word; round or square letters; retracing of writing; finishing stroke of the last word; evenness of lines; legibility; inconsistency; comparison of handwriting with the script of people well known; etc.

The women judges took more notice of neatness than any other characteristic. There was an apparent tendency for some judges to identify certain handwriting "signs" either with dominance or with non-dominance. There was also some evidence that dominance was frequently thought of as an ideal (or "good") trait; consequently, it was more often than not identified with the more "pleasing" aspects of writing (cautiousness; precise letters; strong, masculine hand; regularity of letters; evenness of letters; legibility; etc.) Conversely, non-dominance was apparently thought of as a rather undesirable trait, and was, therefore, identified with the opposite (less pleasing) script "signs."

#### SUMMARY OF RESULTS

Samples of handwriting (a sentence written from dictation) of 5 men and 5 women, representing 5 different degrees of dominance as measured by the Bernreuter Personality Inventory, were presented twice (in different orders) by an opaque projector to 100 untrained judges, evenly divided as to sex. The judges made their ratings on a 7-point scale (-3 to +3), and listed the characteristics of script in which they placed most confidence in forming a basis for their judgments.

It was found that:

1. The men judges were slightly superior to the women judges in rating both the subjects of their own sex and those of the opposite sex.
2. The women judges rated the subjects slightly higher on dominance than did the men judges.
3. There was practically no difference between the average

SD's (for all 10 subjects) of the men and women judges.

4. The reliability coefficients of the judges' ratings of dominance from the script samples of each of the 10 subjects were, in general, rather low; the judgments were not highly consistent.

5. The ratings of the women judges were somewhat more consistent than those of the men judges.

6. The correlation between the 100 judges' ratings of dominance and the Bernreuter percentiles of the 10 subjects was  $-.11$  ( $-.10$  for the 50 men;  $-.15$  for the 50 women).

7. There was an apparent tendency for some subjects to identify certain handwriting "signs" with dominance or with non-dominance.

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